

style which, to say the least of it, is clumsy, and which in many places is so unique as to be almost ludicrous. Prof. Guthrie calls every thing either a *stuff* or a *thing*, for instance, clay is a stuff and a brick is a thing, so then he goes on to tell what stuffs are and how they are made into things. The different subjects are very carefully arranged in chapters and paragraphs, and questions are given which would prove very useful for a class. Some of the descriptions of common objects are graphic, in other cases there is rather too much brevity employed.

*A Lady's Cruise in a French Man-of-War.* By C. F. Gordon Cumming. Two vols. Map and Illustrations. (Edinburgh and London: Blackwood, 1882.)

THOSE who have read Miss Gordon Cumming's "At Home in Fiji," recently reviewed in these pages, will be glad to meet with her again. The present work is more slight and sketchy than the former, but no less interesting. It consists of a series of letters written from day to day during a cruise on board a French man-of-war, in the autumn of 1877. Miss Cumming was the guest of the French Bishop of Samoa, and accompanied him on his visits to the churches on various South Sea Islands. In this way she visited the Tonga, Samoa, and the Society Islands, making a specially long stay in Tahiti, and everywhere received with the warmest hospitality. Besides the genuine interest of Miss Cumming's narrative, it is valuable as giving a very full idea of the present condition of the islands visited. She has also a naturalist's eye for geology and botany, and has occasional interesting notes on the products of the islands. The cover of her book is a novelty, and its delicate colours make one afraid to handle it. It bears a coloured illustration of the beautiful climbing fern, which twines round trees and shrubs in the Pacific Islands, and is called by the natives "Wa Kalou" (God's Own Fern).

#### LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

#### The Mid-day Darkness of Sunday, January 22

It is to be hoped that you will receive many and good accounts of the wonderful, perhaps unprecedented darkness which obscured London for some three hours on Sunday last, in order that its range may be localized.

It appears to have commenced about 10½ A.M., though I cannot vouch for it, as I had been up till near dawn, and was not roused till near noon. Then truly it was hard to believe the clock! To all practical intents and purposes it was night; only the street lamps remained unlit. This however enabled one to realize more fully the wonderful absence of all ordinary daylight in the streets. After the first surprise, it occurred to me to note such facts as would hereafter constitute evidence. In the first place I sought to establish that the phenomenon was not an ordinary thick London fog; secondly, to find some striking measure of the darkness, in one's immediate vicinity. A third observation offered itself in corroboration of both. These I will give in detail.

Looking out of a first-floor window, eastwards, I had on the right towards the south the sharp tall spire of Langham Church, clearly visible (at a distance of 65 yards) against the darkly lurid background afforded by the distant fog behind, which must have been the sun, then near the meridian and at about the proper elevation, but of course quite invisible. The clearness of the outline showed how slight was the fog—at any rate below the level of its apex. Next, looking across the street, fourteen yards from wall to wall, the gas-lit interiors opposite were all plainly visible—blinds not being down, nor curtains drawn, in London, during the daytime, even if the gas

is lit. It was *obvious* that there was no fog to speak of. Next, as to the darkness: I say that the street lamps were not lit; consequently this observation was easy. I remarked that though one could *hear* the passers-by on the opposite pavement, they were *quite invisible*. I could only see the lower limbs as they crossed the dim lights in the opposite basement windows. Lastly, looking northwards, where a turn of the street brings a line of four-storied houses across the line of sight, at forty-five yards distance, many of the windows where the occupants were not at church, being lighted from within, were easily seen; but there was *not the faintest sky-line*: the sky, or rather background of foggy air, was utterly devoid of illumination. The windows alone stood in evidence that there were houses there, *not* obscured by fog.

Finally, so strong was the impression of *mere darkness* that, having sat down to write, I started up and went again to the window, with the ejaculation—"Why, one ought to see the stars!" and I should hardly have been otherwise than satisfied if I had seen some.

Others may have seen this kind of thing in London before. Certainly I have not; and I have a strong impression that if it had happened on a week day, instead of on a Sunday during the morning service, we should have had a storm of complaints from the City, which even the *Times* would have noticed!

1, Langham Street, January 24

J. HERSHEY.

#### Earth-Currents

A REMARKABLE and unusual sudden appearance of earth currents occurred between 10.15 and 10.20 p.m. Greenwich time on the evening of January 19, on lines running east and west. They disappeared as rapidly as they arrived. They were weak, measuring, when at a maximum, 3.3 milliamperes. Traces remained until 10.50. It will be interesting to learn if simultaneous disturbances occurred in our magnetic observatories. I have not heard of any aurora being visible that night.

January 24

W. H. PREECE

#### The Storage of Electricity

WE have heard a great deal of late in reference to what is called the storing of electricity, and not long since we had a long account in the *Times* of the journey from Paris to Scotland of a gentleman who carried with him a number of cells "filled with electricity," and representing "hundreds of thousands of foot-pounds of force." The daily papers and the scientific serials have vied with each other in telling how electricity can be stored, or bottled up and transported from place to place, to be drawn upon as circumstances may demand. The result is that the majority of those practically unacquainted with the subject have very false ideas as to the nature of the Planté, the Faure, or the Sutton accumulators. In no sense of the word can these beautiful forms of batteries be called storers of electricity. A man who should carry with him a piece of copper, a piece of zinc, and a little sulphuric acid, and should then boast that he was transporting electricity from place to place, or carrying half-a-dozen thunderstorms in his pocket, would be rightly regarded as committing an abuse of language. A man who carries a box of lucifer matches in his pocket has no right to say he is transporting fire from place to place, or to speak of them as storers or accumulators of fire. In like manner it is an abuse of language, to speak of electricity being carried from place to place, or stored up for future use in the Faure secondary battery. Nor is it less incorrect, or less misleading to speak of "charging" such batteries with electricity. The dynamo machine may render the amalgamated lead and copper of a Sutton battery capable of being unequally acted upon by sulphuric acid, and of thus giving rise to an energetic current of electricity, and the reversing action of such batteries is undoubtedly very beautiful and certain to be of the greatest possible practical convenience, but there is nothing in the principle of their action to justify the very misleading language used in reference to them, not only by writers to the provincial press but by scientific men in high-class journals. Practical electricians understand generally perfectly well what they mean by the figurative language they use, but it would be well, if in lectures and articles of a didactic nature, or intended for the information of the general public, they were to use language of a less metaphysical character and to describe a thing as it really is. It is because as a teacher I know how apt people are to give a concrete significance to abstract or figurative expres-

sions that I ask you to find room in your pages for this short protest.

EDMUND P. TOY

Middle Class Schools, Littlehampton, January 13

### A Solar Halo

A PHENOMENON quite unusual in these parts was witnessed here this morning in the form of a solar halo of surpassing brilliancy. The outer ring was dazzling white; the next pale lemon, the inner orange, and the inclosed space grayish brown, uniform throughout. The display was brightest at sunrise. The sky was clear with the exception of a few light clouds along the eastern horizon. The air was still. The temperature was ten degrees below freezing point. As the sun climbed higher the colours gradually faded out, until at 10.30 the last traces had disappeared.

J. T. BROWNELL

Mansfield, Pa., U.S.A., January 10

### Coltsfoot

THERE is an interesting article on "Coltsfoot" in the *Pall Mall* for January 21, in which mention is made of fifty-two species of wild flowers being in bloom at Lyme Regis; "and at Hastings nearly one hundred have been counted within a semi-circular radius of 10 miles." Coltsfoot is amongst the flowers already in blossom on the south coast; and it is instanced as a very remarkable proof of the mildness of this winter. I think it is nearly as wonderful that *Corylus avellana*, the common nut, should be in blossom on a sheltered bank in North Wiltshire. Not only are the catkins fully in blow, but the fertile flowers are also in blossom, and that not only on one, but on many bushes. A wood full of primroses such as we often wait for till March or April is another instance of absence of frost.

T. S. MASKELYNE

Salthrop, Wroughton, Wilts., January 23

### The Absolute Sine Electrometer

IN my paper in last week's *NATURE* (p. 278), read " $\frac{1}{10}$  inch pitch" instead of " $\frac{1}{16}$  inch pitch" for the micrometer screw. The diagram has been turned round counterclockwise.

Cooper's Hill, January 21

GEORGE M. MINCHIN

PEDICULI.—A correspondent asks if any one can inform him whether in experimental researches on spontaneous generation pediculi have ever been the subjects of observation, and if so, with what results? Further, is it likely that the density of their dermal structures affords them a means of resistance to heat applied through a liquid medium?

### PHYSICAL NOTES

DR. R. KÖNIG has recently described a method of investigating the nodes in the vibrating column of air in an organ-pipe. The pipe—a large one—is laid horizontally on its back, and a long slit is made the whole length of the pipe. The slit is closed by water, the pipe lying in a trough. A small curved tube, open at the end, passes down through the water and up through the slit into the pipe. Its other end is joined to a manometric capsule in conjunction with a flame apparatus of the usual type. The nodal surfaces can be determined to within two millimetres. The introduction of the tube interferes less with the conditions of vibration than the introduction of a tissue-paper disk or other explorer hitherto used.

A NEW barometer, automatically recording the variations on an enlarged scale, has been invented by Marshall Delaey (*Bull. Belg. Acad.*, No. 8). It has the following arrangement:—The barometric tube, having a capacious reservoir at top, is fixedly suspended. The cistern is a tube slightly wider and nearly as long; it bears on one side an index, and on the other a pencil working on a moving cylindrical surface, and it forms the upper part of a kind of areometer, having a downward extension in the form of a closed tube floating in mercury in a wider tube, which communicates below, through a U-tube, with a wide and shallow covered cistern, the level in which is approximately constant. The variation of pressure is marked by the variation of the height of mercury in the reservoir, and this latter is to that of the total height in the barometric cistern (or to the path of the float or of the pencil) in the ratio of the section of the cistern to that of the reservoir (a sixth in the instrument the author represents). Thus an amplification is realised.

THE colourless fluorspar of Switzerland, according to M. Cornu (*Jour. de Phys.*, October), is a substance at least as transparent for ultra-violet rays as quartz, and its law of dispersion is so much in harmony with that of quartz that with the two a system of lenses of nearly perfect achromatism may be had. To give an idea of this achromatism M. Cornu states that he obtains on one *cliché*, with very satisfactory distinctness, the spectrum of all the photographic lines of metals, from the three blue lines of zinc to the lines No. 32 of aluminium. With such objectives a determination of the wave-lengths of very refrangible radiations becomes possible. The author describes measurements of  $t$  is kind (along with details of method) in the case of magnesium, cadmium, zinc, and aluminium.

A RHEOMETER, for measuring currents at different depths in water, is described by Signor Scardona in the *Rivista Scientifico-Industriale* (September 30). It acts by pulses generated at intervals (according to the speed of the current) in a tube, and affecting a bell. The water-current acts on two screw-vanes on a horizontal shaft in a case attached to a vertical rod. This shaft (which a flat vane keeps in a line with the current) actuates, at intervals, through an endless screw and a reducing system of wheels, a lever applied to a caoutchouc capsule at the end of a metallic tube, through which, and a flexible tube attached, the resulting pulses pass to the bell-arrangement (which is in a portable case). The rod and the metallic tube are each made up of several pieces screwed together, and the vane case and tube can be fixed at any part of the rod. The advantages claimed over Amsler's rheometer are simplicity (in dispensing with electrical action), and a better kind of signal (one stroke of the bell for each turn of a wheel).

AN experimental inquiry by Herr Graetz (*Wied. Ann.* No. 10) into the heat-conductivity of gases and its relation to temperature results as follows:—1. Heat-conduction in the gases air, hydrogen, and (with low temperatures) carbonic acid, consists in transference of progressive energy only; intramolecular energy contributes immeasurably little. The molecules thus behave like material points. 2. The relation of heat conduction to temperature is found by experiment to be such (approximately) as Clausius' theory requires. 3. All results for gases and vapours, showing divergences from the values calculated from theory, are without evidential force, for they only gave the apparent heat-conducting power, in consequence of absorption of radiant heat. 4. The divergence of the temperature-coefficient of friction from that calculated from theory cannot have for cause (or not alone) the decrease of the molecular diameter with rising temperature; some other explanation must be sought.

A USEFUL comparison of the numerous determinations of the expansion of water by heat is made by Herr Volkmann in a paper contributed to Königsberg Institute (*Wied. Ann.* No. 10). Experimenters, it is known, have used two methods—the hydrostatic and the dilatometric. The author gives in a table the average values for volume and density of water (deduced from the observations of Hagen, Matthiessen, Pierre, Kopp, and Jolly) for all temperatures from zero to 25°; also the volumes every 5° from 25° up to 100°. The temperature of greatest density of water is, according to the best data, +3.94° C. Herr Volkmann thinks there is no occasion to study the subject anew on the lines hitherto adopted; but it might be well (in his opinion) to observe the absolute expansion of water in the same way as Regnault determined that of mercury (with communicating tubes).

IN view of assertions that the band-spectrum attributed to hydrogen by Herr Wüllner is really that of a hydrocarbon—acetylene according to Herr Ciamician—the former physicist has made a careful examination of the acetylene spectrum (*Wied. Ann.* No. 10), and finds that, as might be expected from the higher proportion of carbon in acetylene, its spectrum differs from that of hydrogen much more than do the spectra of ethylene and marsh gas. While in these latter the characteristic carbon bands indicate the spectrum to be that of a carbon-containing gas, the whole of the red, orange, and yellow part, in the other, resembles much more the spectrum of carbonic acid than it does that of hydrogen.

THE physical properties of indium have been very little known hitherto. A recent contribution on the subject by Herr Erhard (*Wied. Ann.* No. 11) treats of some of its electric properties. As regards resistance, he finds that indium is like some other metals in not coming under the often-accepted rule that pure metals have a change of coefficient of resistance with tempera-